



ASTRO-H

INSTRUMENT CALIBRATION REPORT
SXI BADPIXEL
ASTH-SXI-CALDB-BADPIX

Version 0.2

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ISAS/ GSFC

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Table of Contents

1	Introduction.....	4
1.1	Purpose.....	4
1.2	Scientific Impact	4
2	Realese CALDB 20160310.....	4
2.1	Data Description	4
2.2	Data Analysis	4
2.3	Results.....	4

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Introduction

1.1 Purpose

This document describes how the bad pixel list for the Soft X-ray Imager (SXI) is assigned in the ground software and how the parameters defined in the caldb file were derived. The CALDB file structure is define in the ASTH-SCT-04 and available from the CALDB web page at <http://hitomi.gsfc.nasa.gov>.

1.2 Scientific Impact

The SXI have unusable pixels on CCDs since they are too noisy to detect X-ray signals. The events detected around bad pixels are not selected as “good” events in cleaned event files. The effective area loss due to the exclusion of the bad pixels is taken into account in arf generator.

2 Release CALDB 20160310

Filename	Valid data	Release data	CALDB Vrs	Comments
ah_sxi_badpix_20140101v001.fits	2014-01-01	20160310	001	

2.1 Data Description

The data were taken from a ground experiment performed at Kyoto University in Aug. 2014 using the SXI FM system. The CCD chips were set to be cooled at -110 degC. rframe (raw frame) data were taken in the experiment.

2.2 Data Analysis

Dark frame data were generated from raw frame data according to the same algorithm as that used in the SXI electronics. “hot” pixels are regarded as those having a pulse height value of 0xFFFF in dark frame. Then, “bad” pixels are defined as hot pixels that are always regarded as such in all through the experiment.

2.3 Results

Pixels in the following three columns are the bad pixels (practically bad column) detected in the ground experiments.

Segment: RAWX
 CCD1AB: 313
 CCD2CD: 77
 CCD3CD: 11